

Supplementary Materials

Title: Decoding Cortical Glial Cell Development

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Supplemental Figures S1-S5

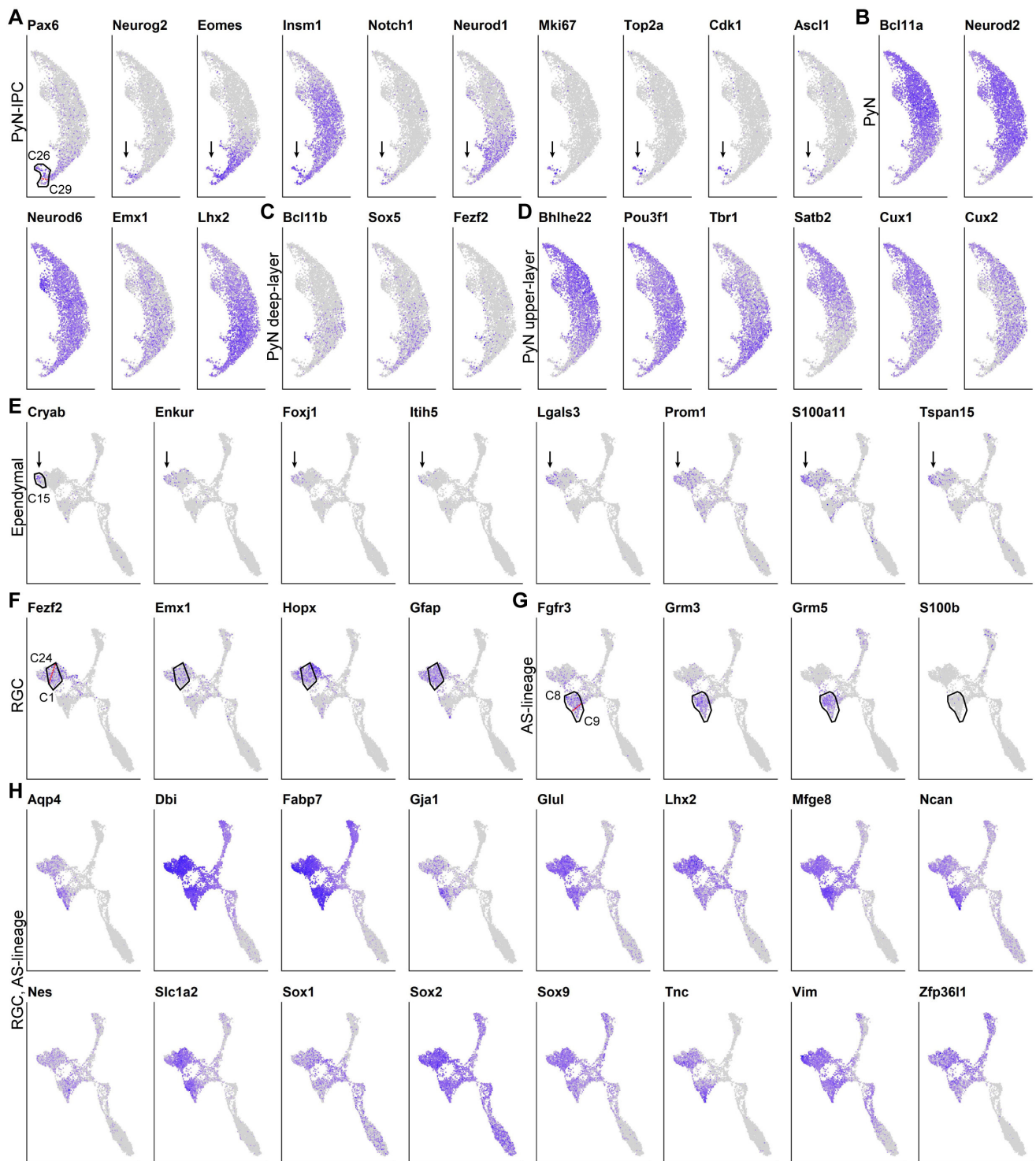


Fig. S1 Feature plots showing the cluster-specific expression of marker genes in PyN-lineage, ependymal cells, RGCs and AS-lineage. **A-D** Expression of marker genes in PyN-IPCs, deep and upper layer PyNs. **E** Expression of marker genes in immature ependymal cells. **F-H** Expression patterns of RGC and AS-lineage marker genes.

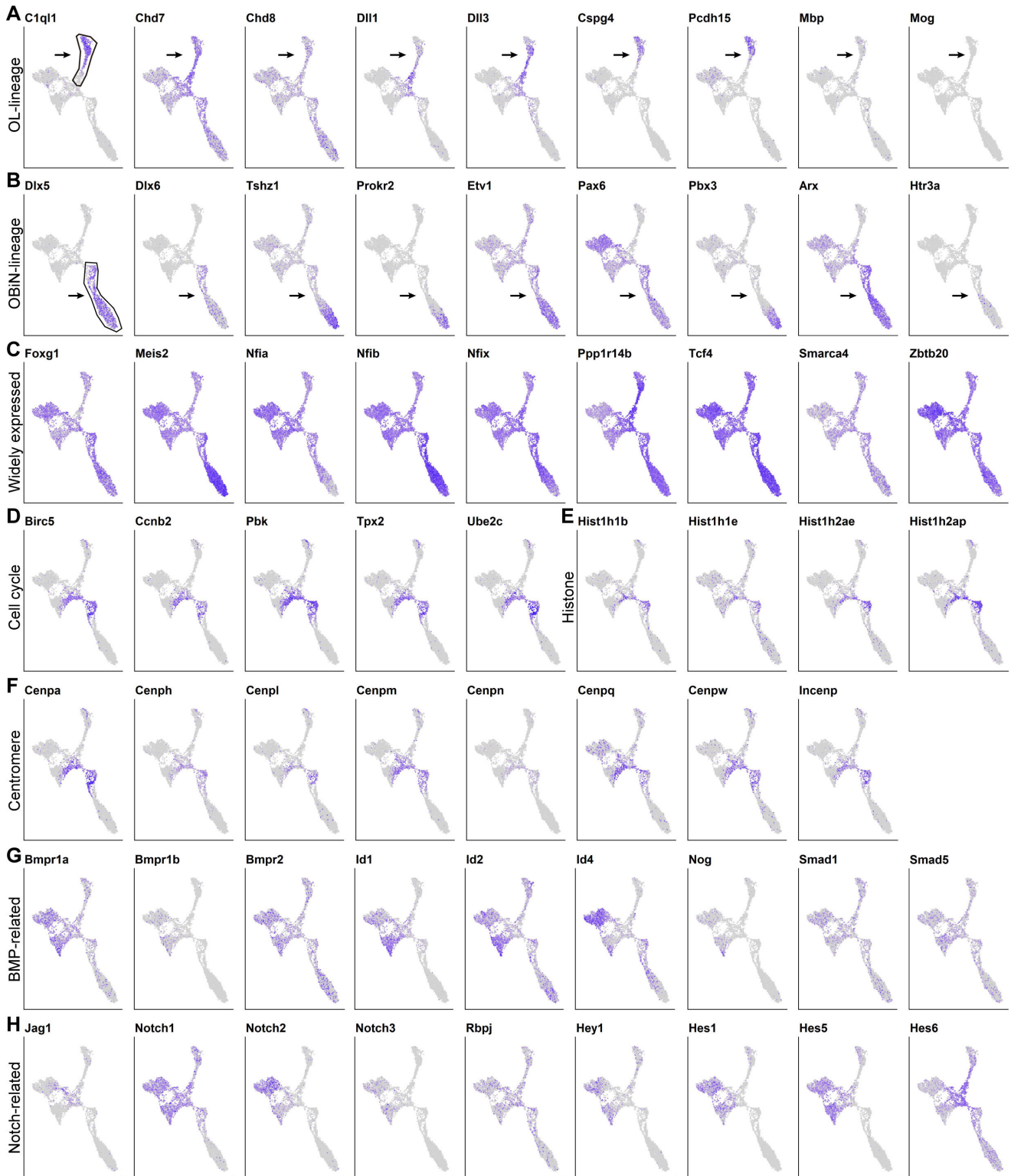


Fig. S2 Feature plots showing the expression patterns of genes. **A, B** Expression of marker genes in OL-lineage and OBIN-lineage. **C** Genes that widely expressed in RGC progeny. **D-F** Expression patterns of cell cycle, histone and centromere genes. **G, H** Expression patterns of BMP signaling- and Notch signaling- related genes.

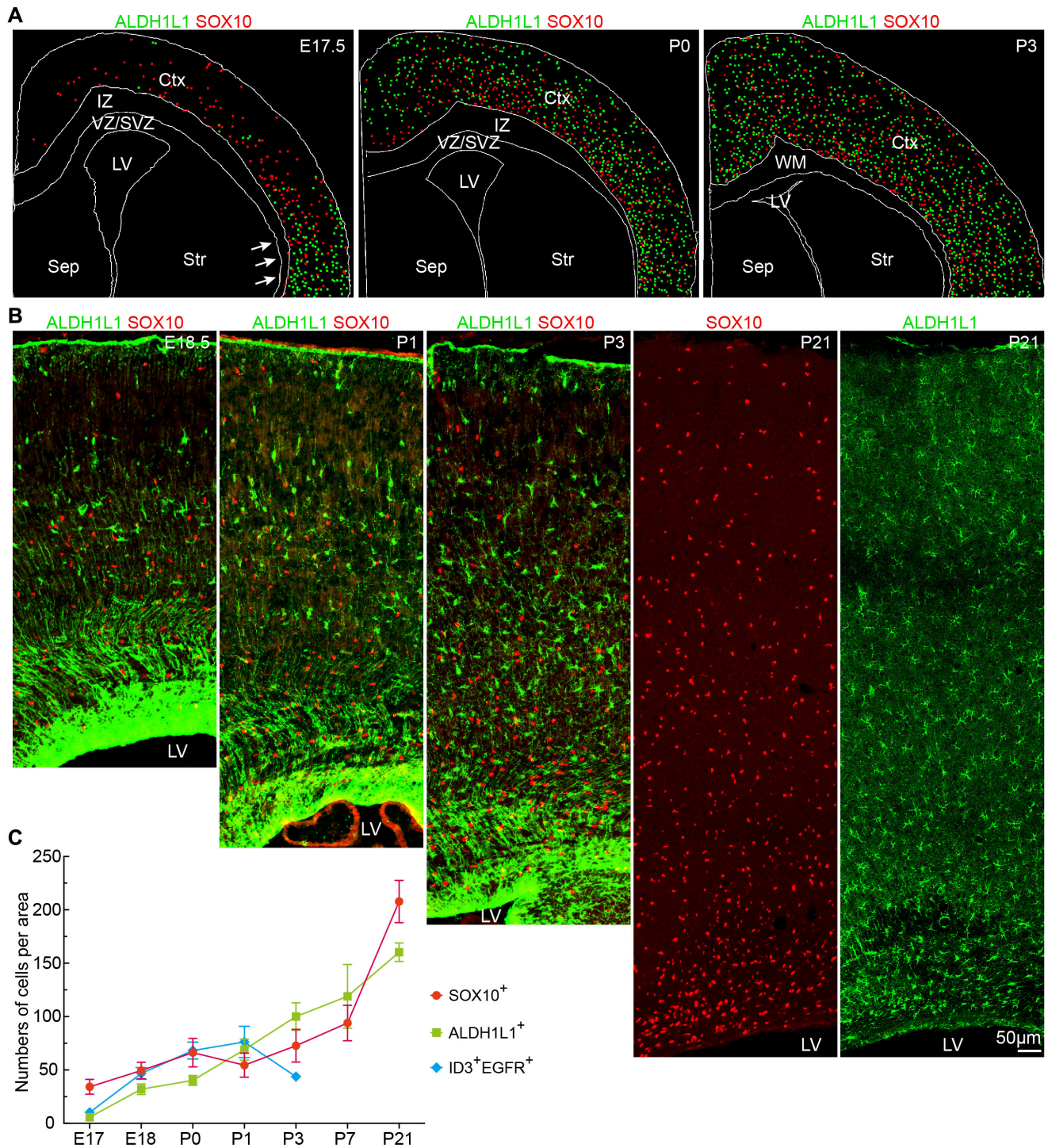


Fig. S3 The development of oligodendrocytes and astrocytes in the cortex. **A** Representative image showed ALDH1L1⁺ and SOX10⁺ cells in the cortex. Each dot represents one cortical glial cell. Note many more ALDH1L1⁺ and SOX10⁺ cells in the ventral cortex (arrows) at E17.5. **B** ALDH1L1⁺ and SOX10⁺ cells in the somatosensory cortex. **C** The numbers of SOX10⁺, ALDH1L1⁺, and EGFR⁺ID3⁺ cells in the somatosensory cortex. We quantified the number of cells in 12 μm thick, 350 μm width, brain coronal sections from similar rostral--caudal levels. We did not quantify EGFR⁺ID3⁺ cells in P7 and P21 cortex due to downregulation of EGFR expression. Means ± SEM.

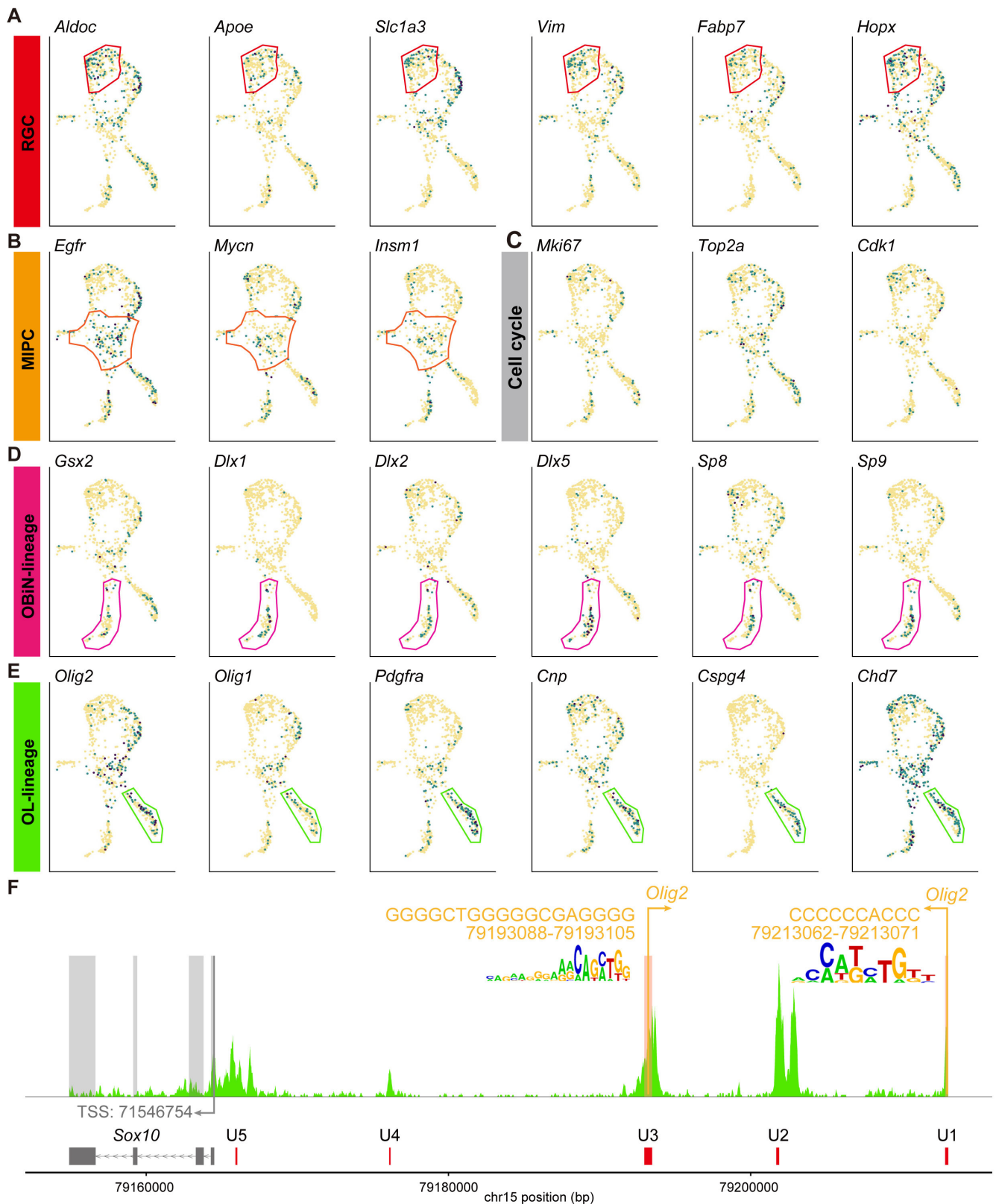


Fig. S4 UMAP plots showing distinct chromatin accessibility profiles of different cell types. **A-C** Chromatin accessibility of the RGC, MIPC and cell cycle marker genes. **D, E** Chromatin accessibility of the OBIN-lineage and OL-lineage regulatory programs. **F** OLIG2 bound to at least 2 conserved *Sox10* enhancers containing E-box (CANNTG) motifs.

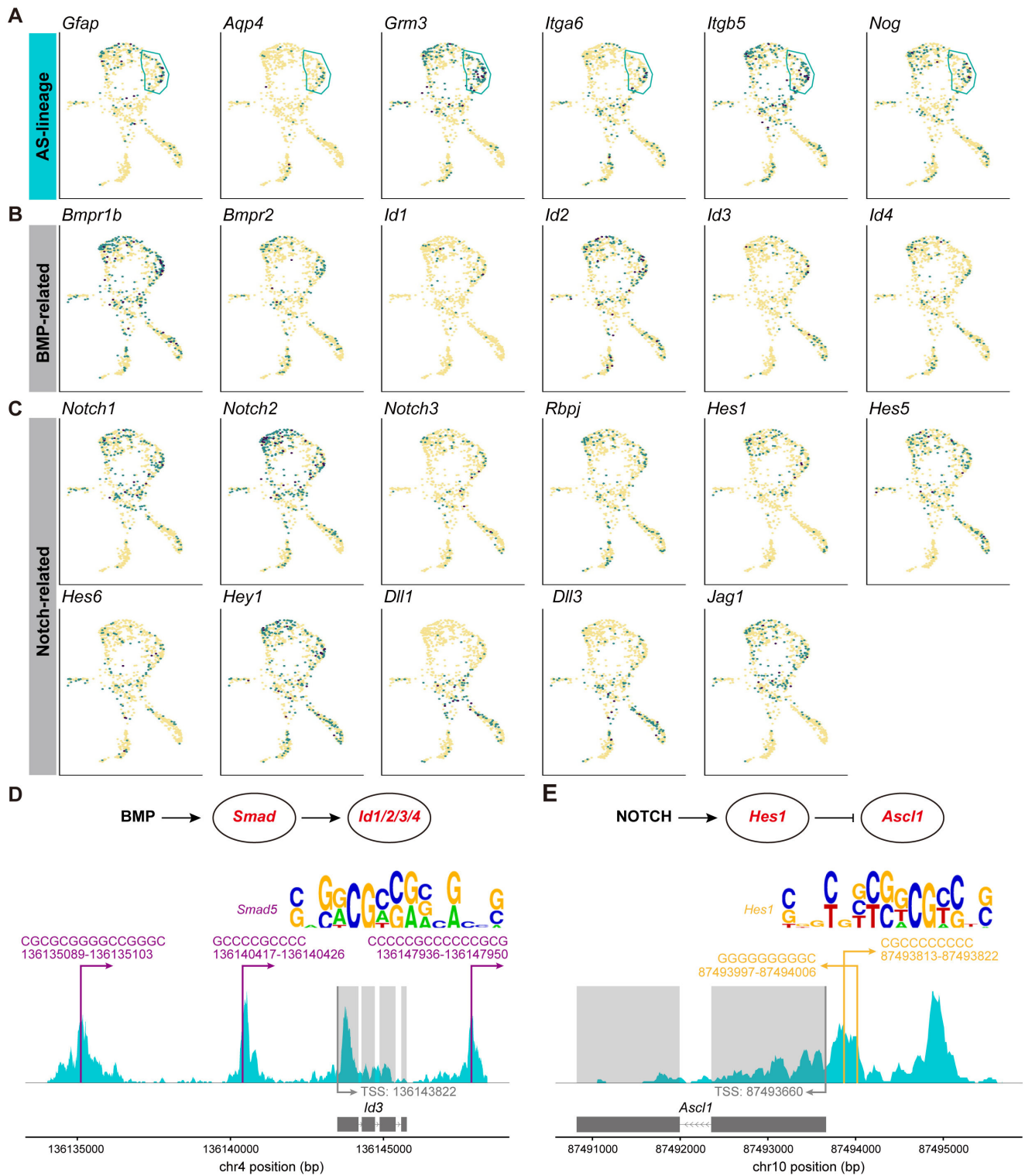


Fig. S5 UMAP plots showing distinct chromatin accessibility signatures of AS-lineage. **A-C** Chromatin accessibility profiles of AS-lineage genes, BMP- signaling and Notch-signaling related genes. **D** SMAD5 bound to enhancers of *Id3*. **E** HES1 bound to the promoter regions of *Ascl1*.